647510 **1101101E1050** **Seat No :_____**

B.B.A. Semester - 1 (*CBCS*) Examination
Oct/Nov. -2019 (OLD COURSE)
ELEMENTS OF BUSINESS MATHEMATICS (ELECTIVE/ALLIED)

Time: 2:30 Hours **Marks: 70**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate marks.

Que-1 (A) Find n if $2^{n+1}\ P_{n-1} : 2^{n-1}\ P_n = 3 : 5$ (07)

(B) How many 4 digits number can be formed by using the numbers 0,1,2,3,4,5,6 once only? How many of them are (i) divisible by 5 (ii) greater than 4500. (07)

OR

Que-1 (A) In usual notations prove that ${}^nC_r + {}^nC_{r-1} = {}^{n+1}C_r$. (07)

(B) Find the value of n and r. ${}^nC_{r-1} : {}^nC_r : {}^nC_{r+1} = 3 : 4 : 5$. (07)

Que-2 (A) The sixth term of an A.P. is 121. Find the sum of its first 11 terms. (07)

(B) Three number are in A.P. Their sum is 15 and the sum of their squares is 93. Find three numbers. (07)

OR

Que-2 (A) Find the sum of n terms of 4+44+444+…… (07)

(B) How many terms of the G.P. 1,4,16,… must be taken to have their sum equal to 341? (07)

Que-3 (A) State binomial theorem and give its properties. (07)

(B) Find out coefficient of x^7 in the expansion of $\left(\frac{x^2}{2} - \frac{2}{x}\right)^8$. (07)

OR

Que-3 (A) Find the term independent of x (constant) in the expansion of $(x^2 + x^{-1})^{12}$ (07)

(B) Obtain the coefficient of x^{12} in the expansion of $(x - x^{-3})^{12}$ (07)

Que-4 (A) Explain the meaning of interpolation and extrapolation. (07)

(B) Find the quadratic polynomial by using NBIF from the following data and then obtain f(4) (07)

X	1	3	5
Y	2	10	26

OR

Que-4 Interpolate the two values in the following data. (14)

X	4.1	4.2	4.3	4.4	4.5	4.6	4.7
Y	18	21	26	?	32	?	40

Que-5 Prove that (14)

(1) $1(1!)+(2!)+(3!)+\ldots\ldots+n(n!) = (n+1)!-1,\ n \in N$

(2) $(1)(2)+(2)(2^2)+(3)(2^3)+\ldots\ldots+n(2^n)=(n-1)2^{n+1}+2,\ n \in N$

OR

Que-5 (A) Find T_n if $S_n = 2n^2+3n$. Also find T_{20}. (07)

(B) Find the sum of n terms of (1) (4) + (3) (7) + (5) (10) + …….. (07)

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